FIG. 1

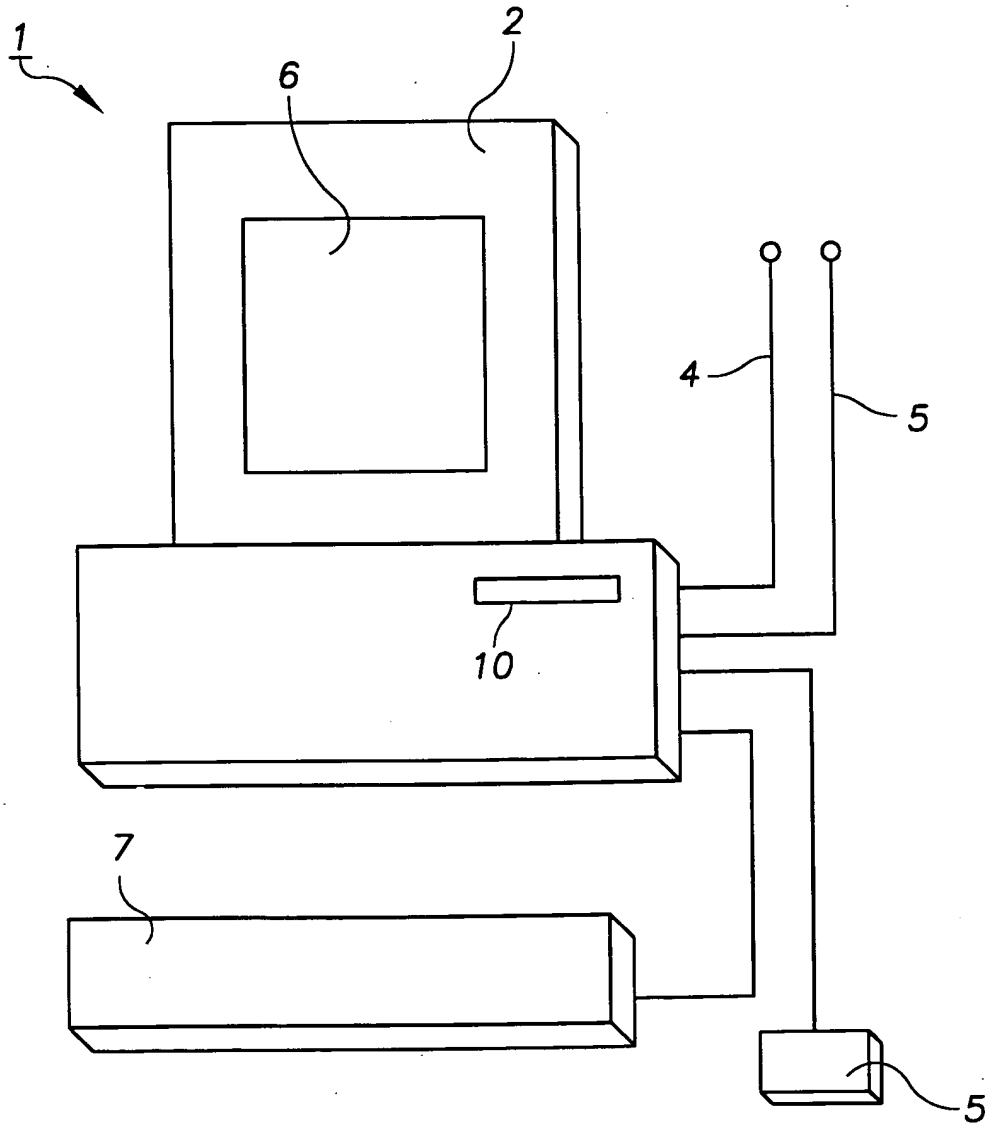

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FIG.2

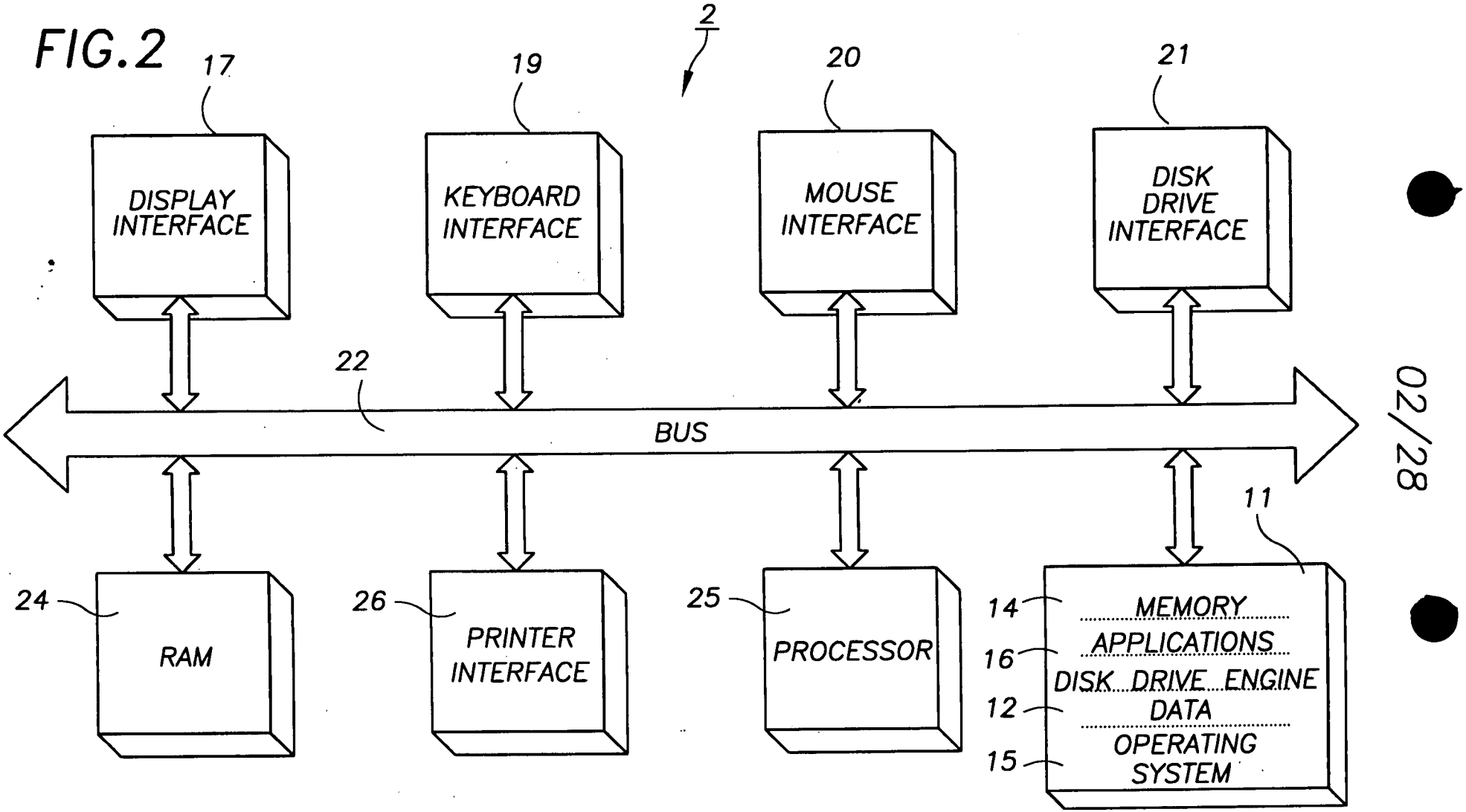
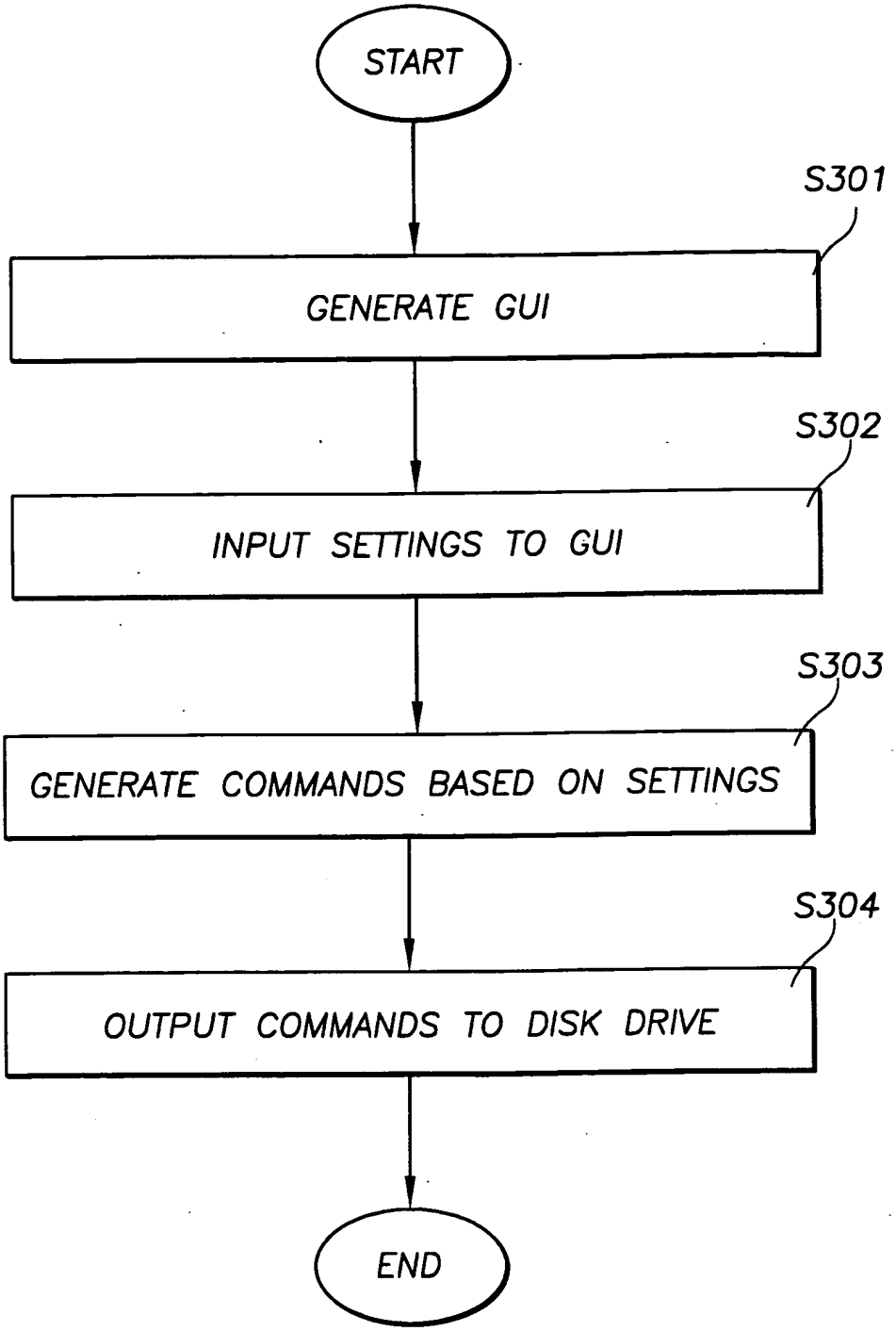


FIG.3


START
S301
GENERATE GUI
S302
INPUT SETTINGS TO GUI
S303
GENERATE COMMANDS BASED ON SETTINGS
S304
OUTPUT COMMANDS TO DISK DRIVE
END

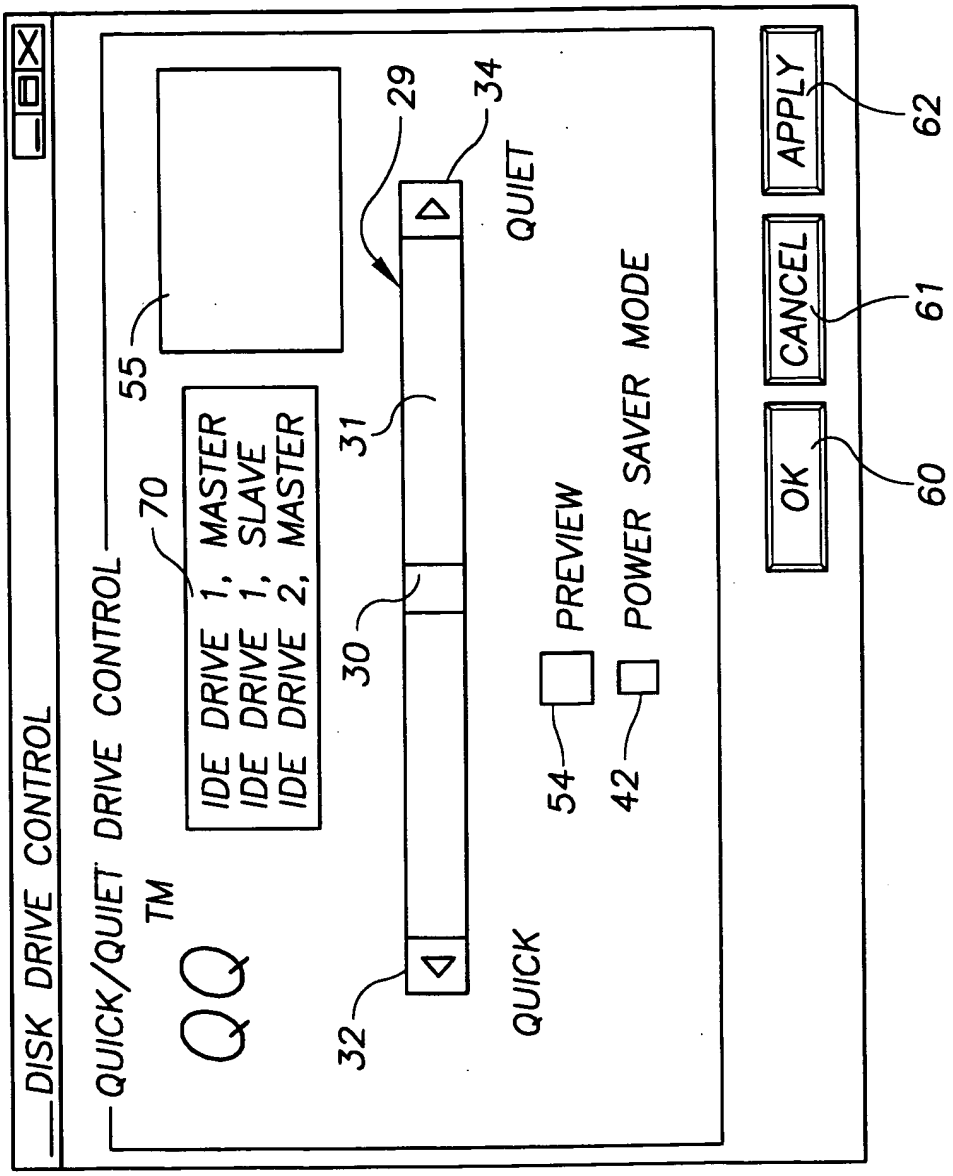

27
DISK DRIVE CONTROL
QUICK/QUIET DRIVE CONTROL
TM
QQ
70
IDE DRIVE 1, MASTER
IDE DRIVE 1, SLAVE
IDE DRIVE 2, MASTER
55
29
34
31
30
32
QUICK
QUIET
PREVIEW
POWER SAVER MODE
54
42
OK
CANCEL
APPLY
60
61
62

FIG. 4

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FIG.5

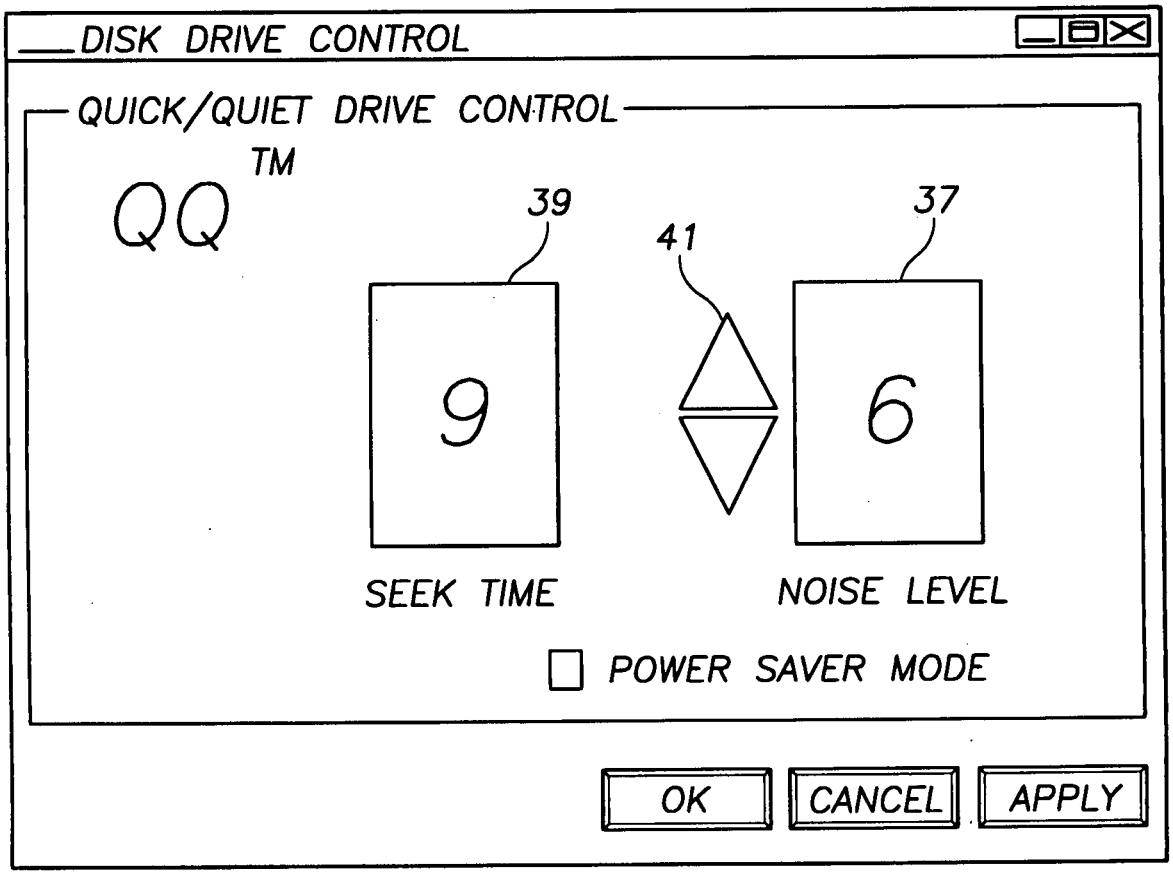

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FIG. 6

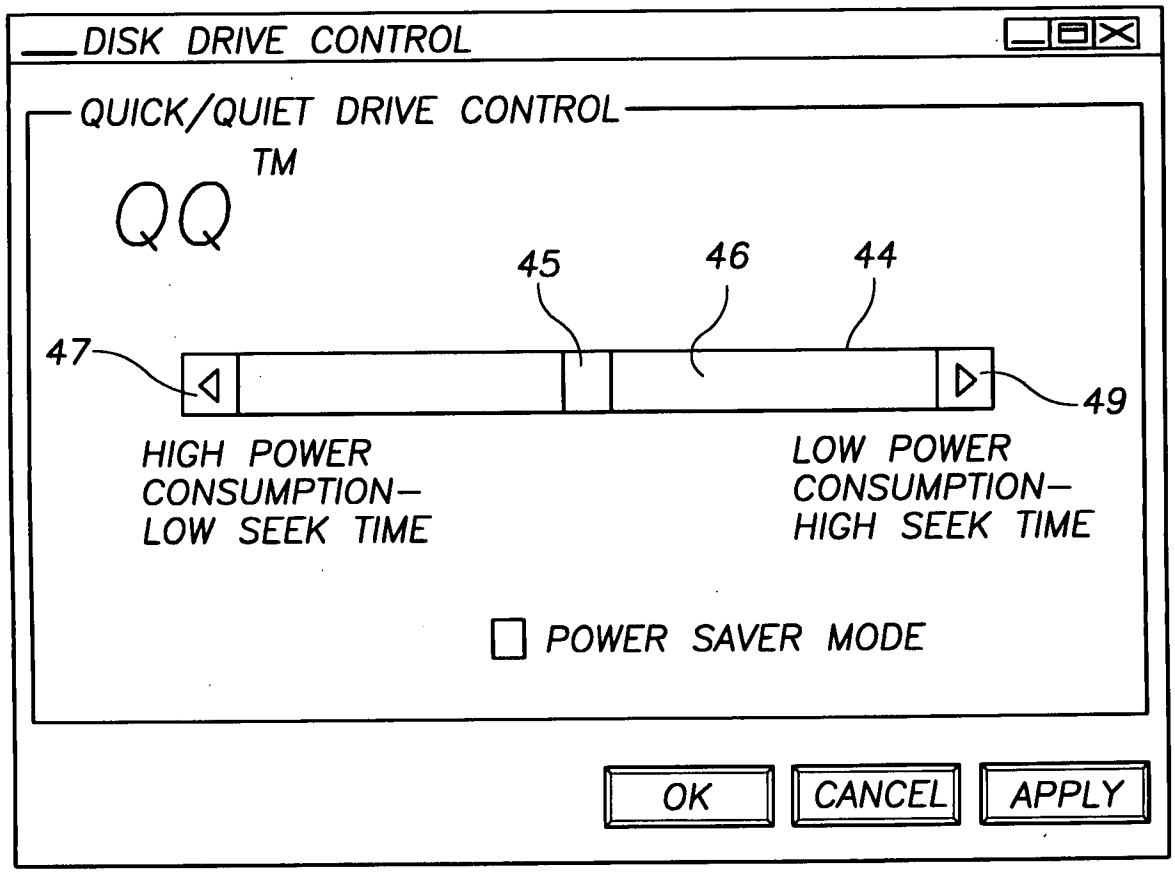

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FIG. 7

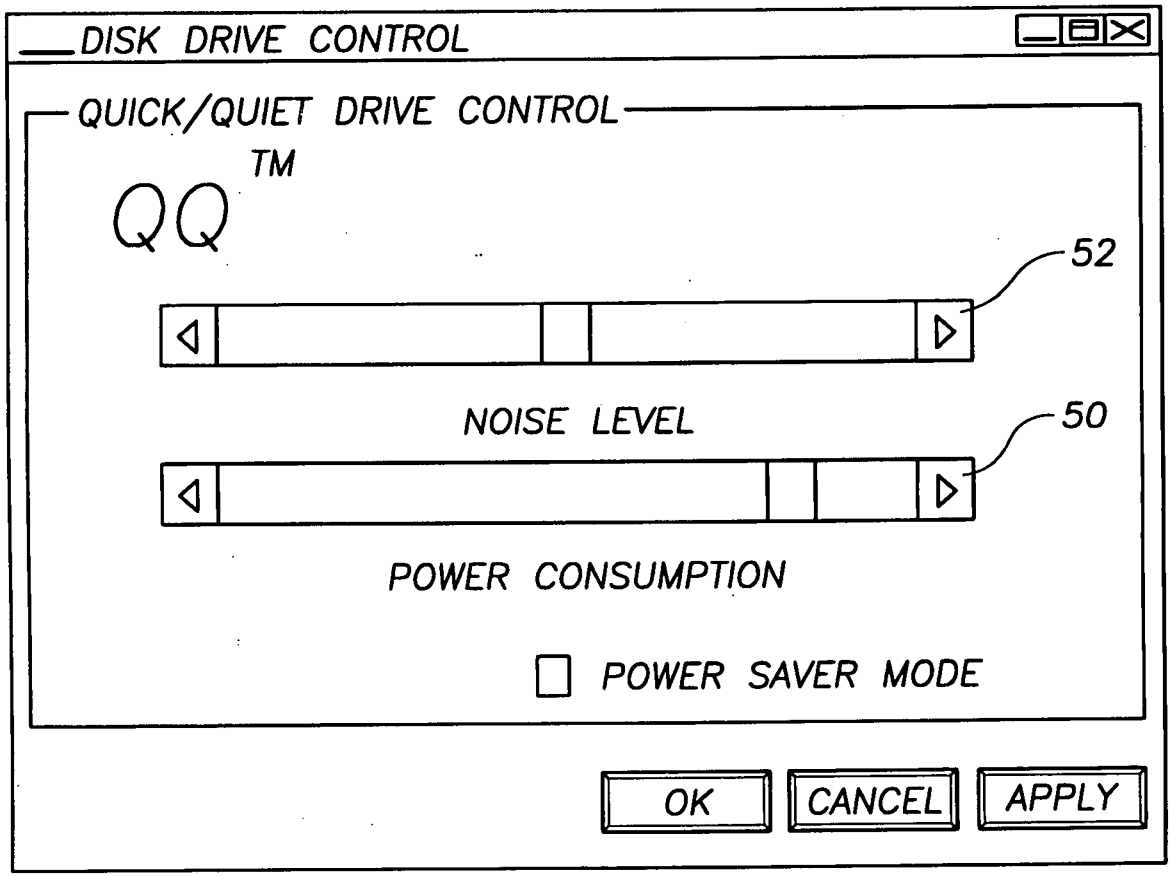


FIG.8

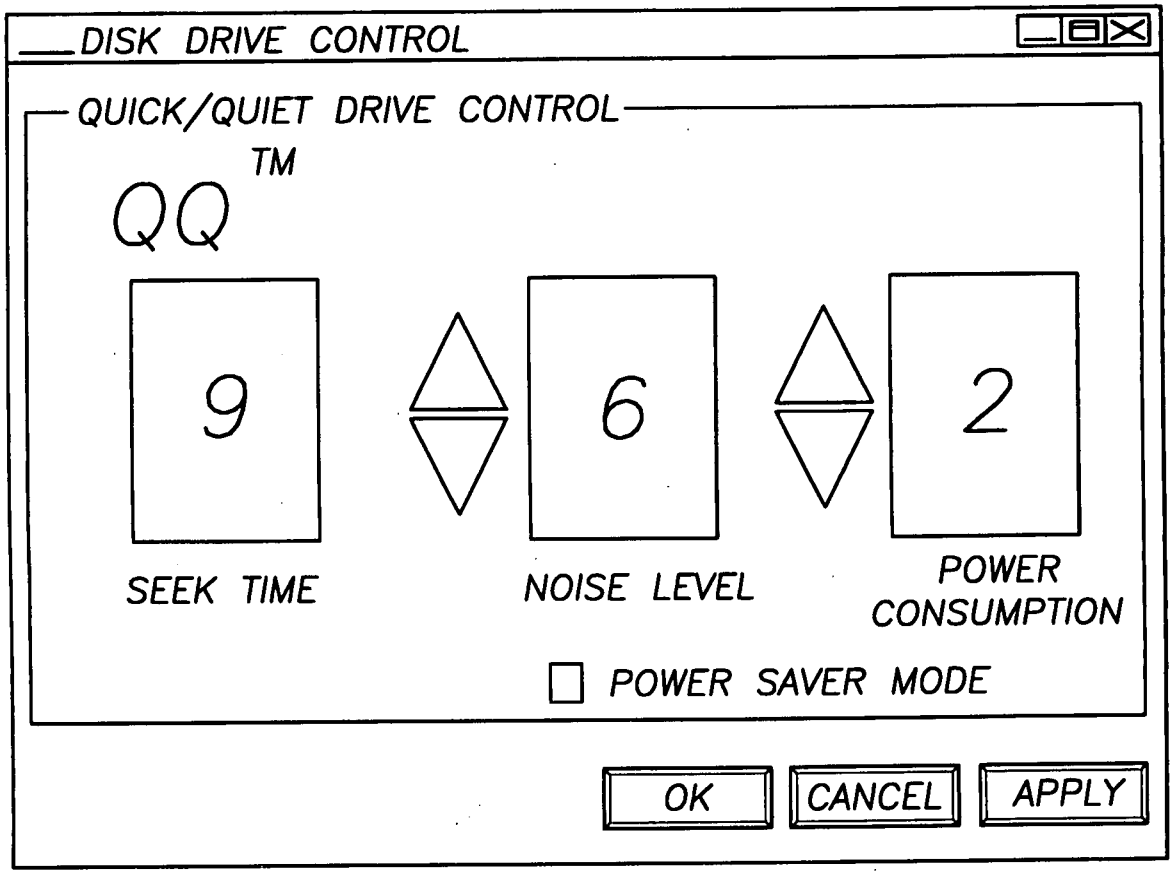
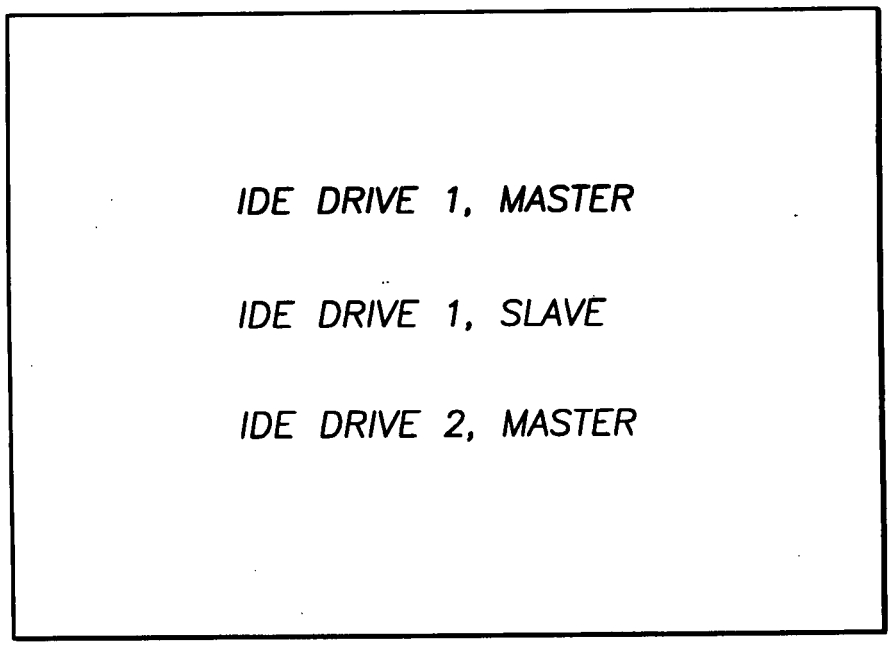

DISK DRIVE CONTROL
QUICK/QUIET DRIVE CONTROL
QQ TM
9
6
2
SEEK TIME
NOISE LEVEL
POWER CONSUMPTION
POWER SAVER MODE
OK
CANCEL
APPLY

FIG.9



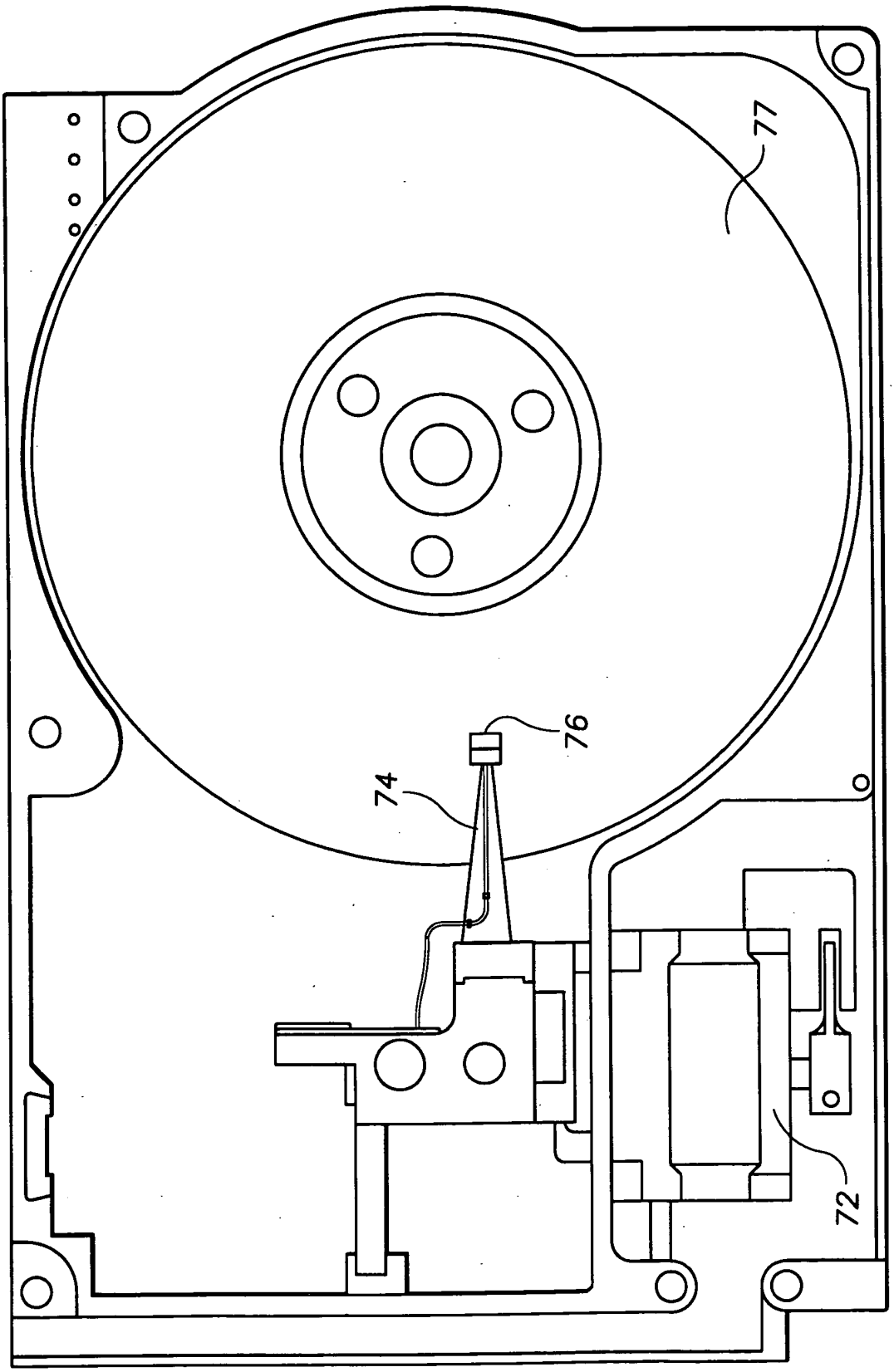
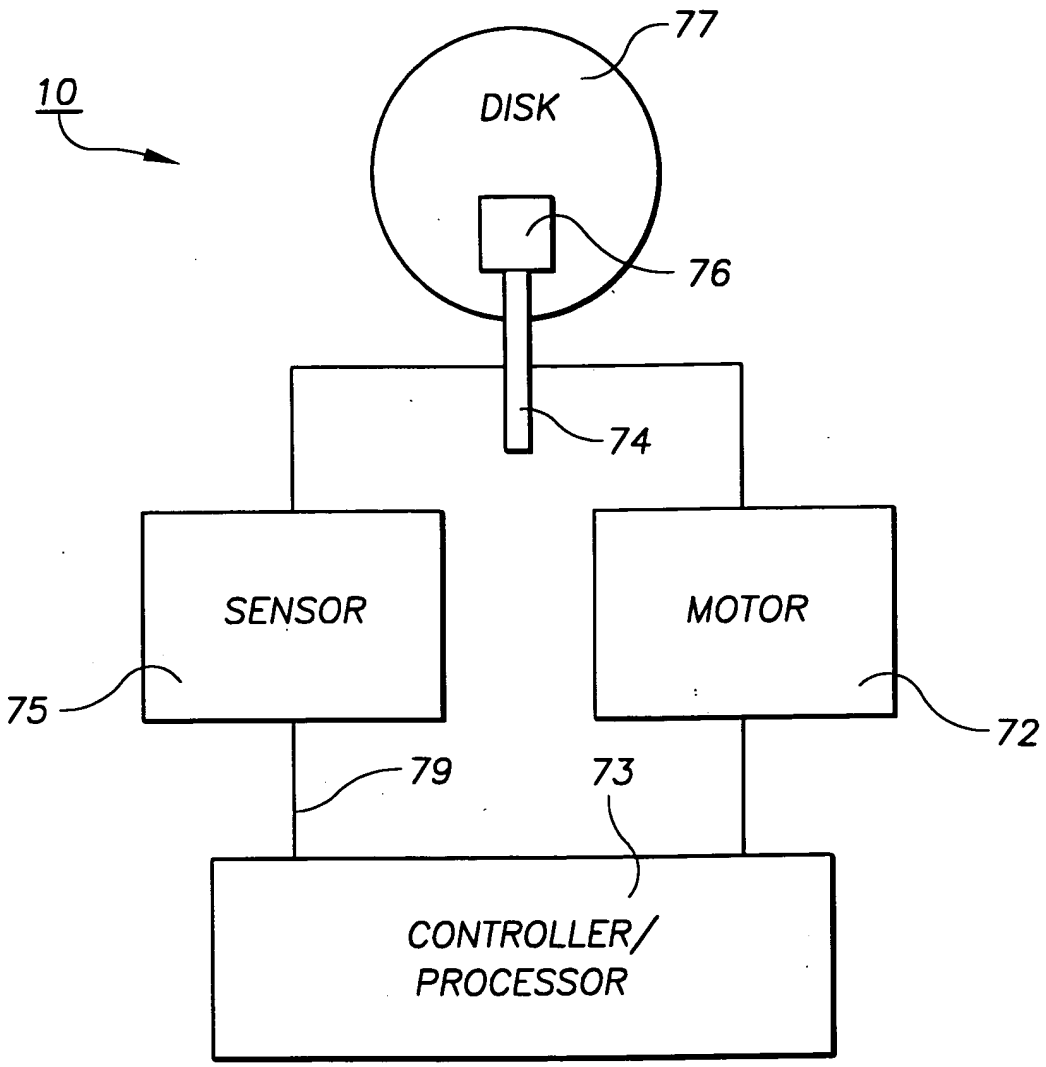


FIG. 10A

FIG. 10B


10
77
DISK
76
74
SENSOR
MOTOR
75
72
79
73
CONTROLLER/
PROCESSOR

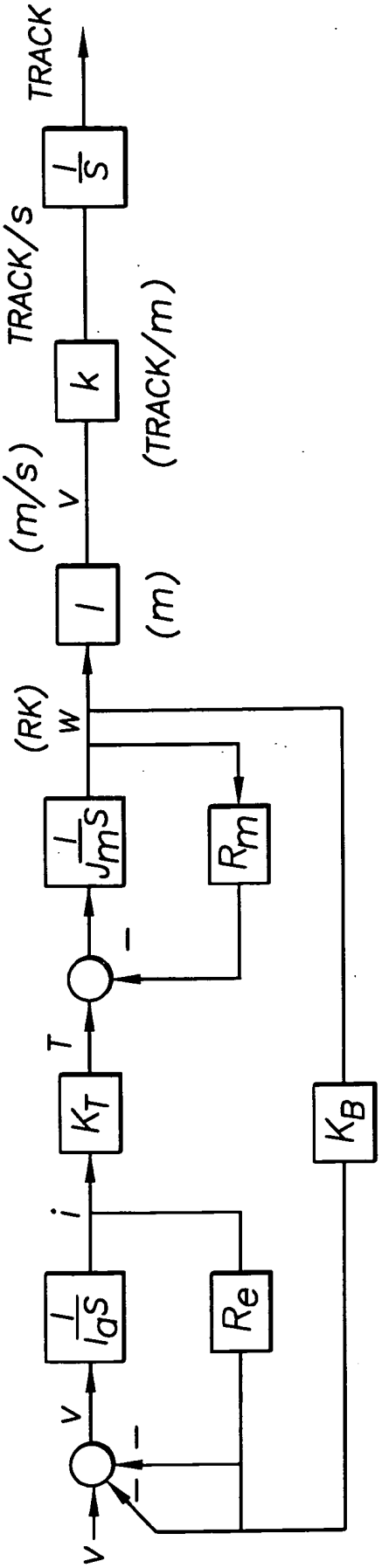

TRACK
TRACK/s
(TRACK/m)
(m/s)
v
(m)
l
(RK)
w
T
i
v
v
$\frac{1}{S}$
k
$\frac{1}{J_m S}$
R_m
K_T
K_B
$\frac{1}{l_a S}$
R_e

FIG. 11

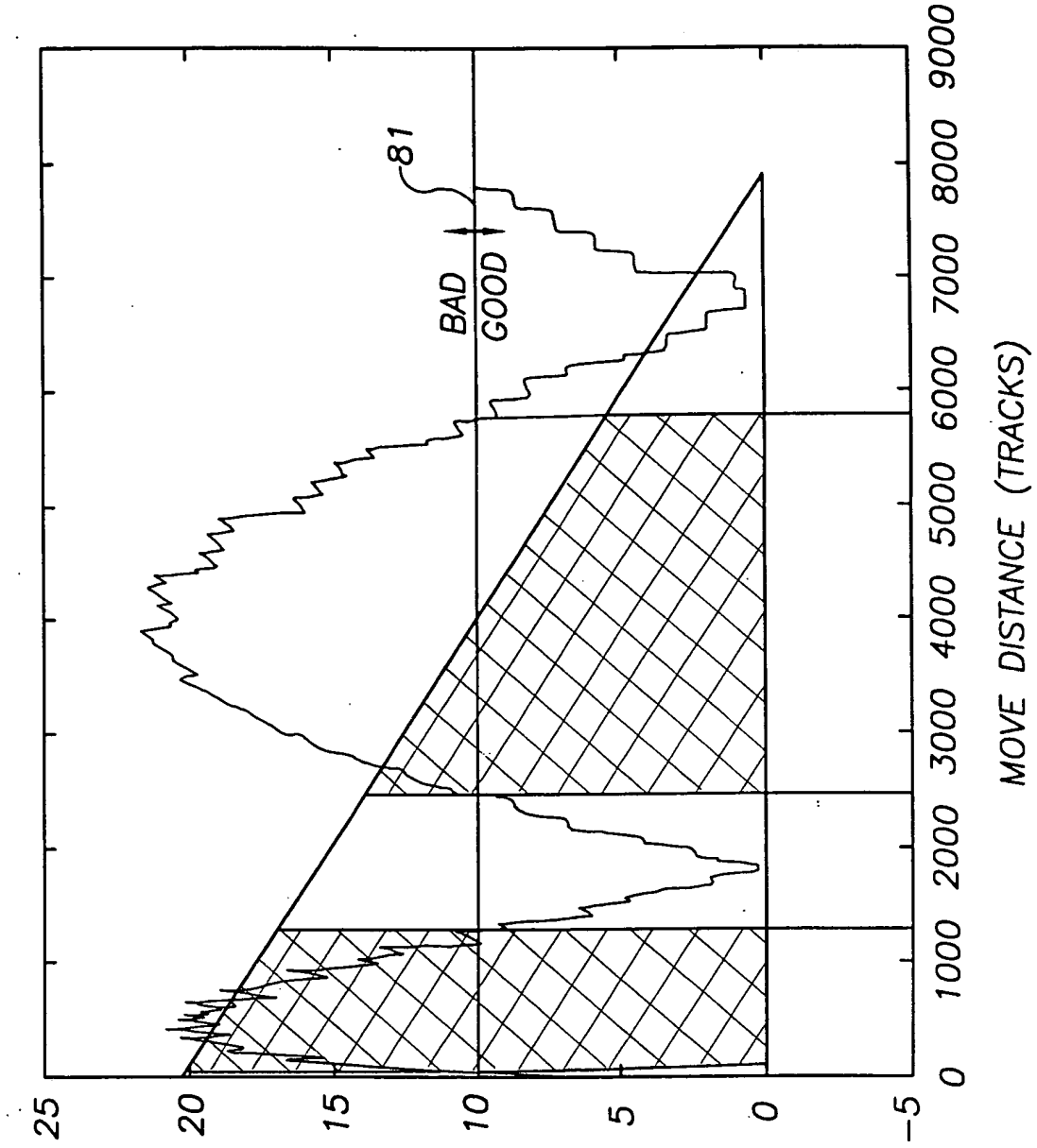

81
BAD
GOOD
25
20
15
10
5
0
-5
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
GOODBAD,NMOVES/
400/2
MOVE DISTANCE (TRACKS)

FIG. 12

FIG. 13

PRIOR ART

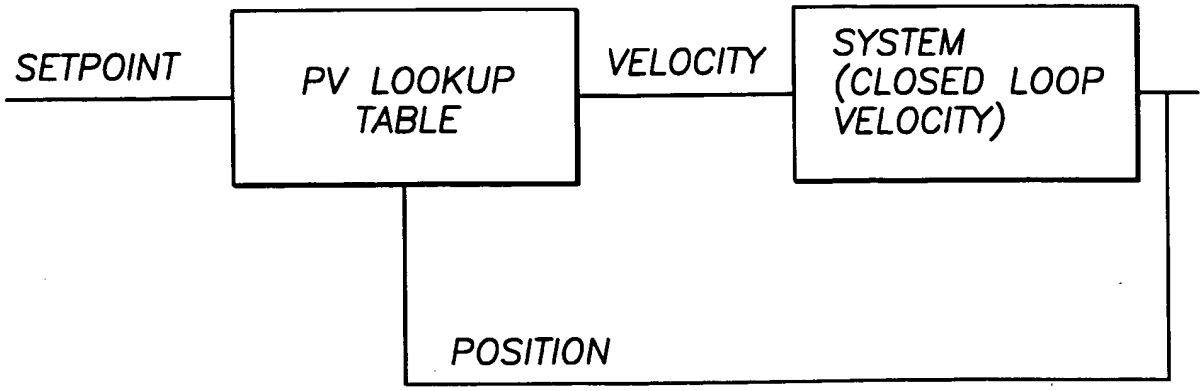


FIG. 14

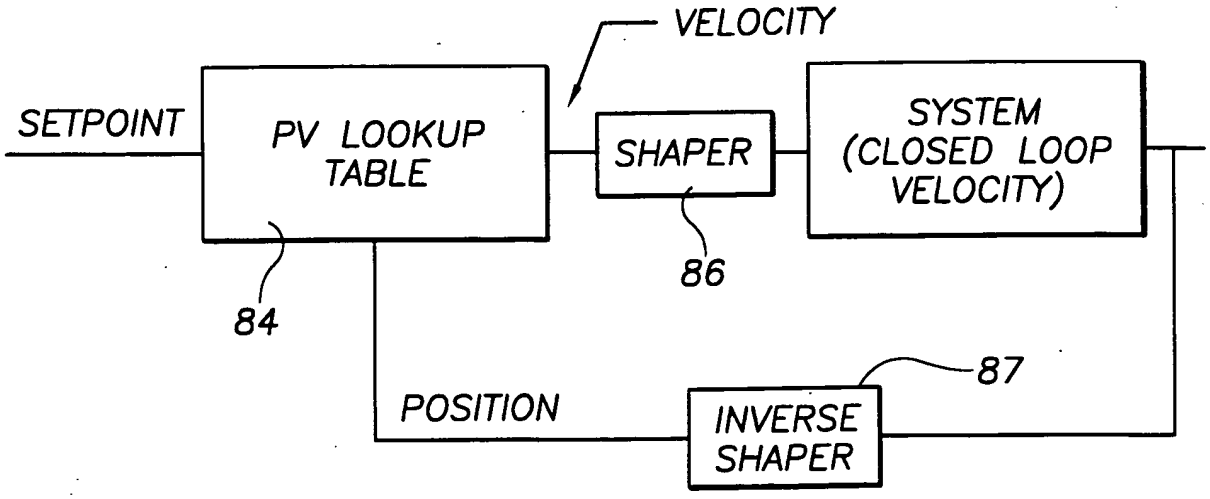


FIG. 15

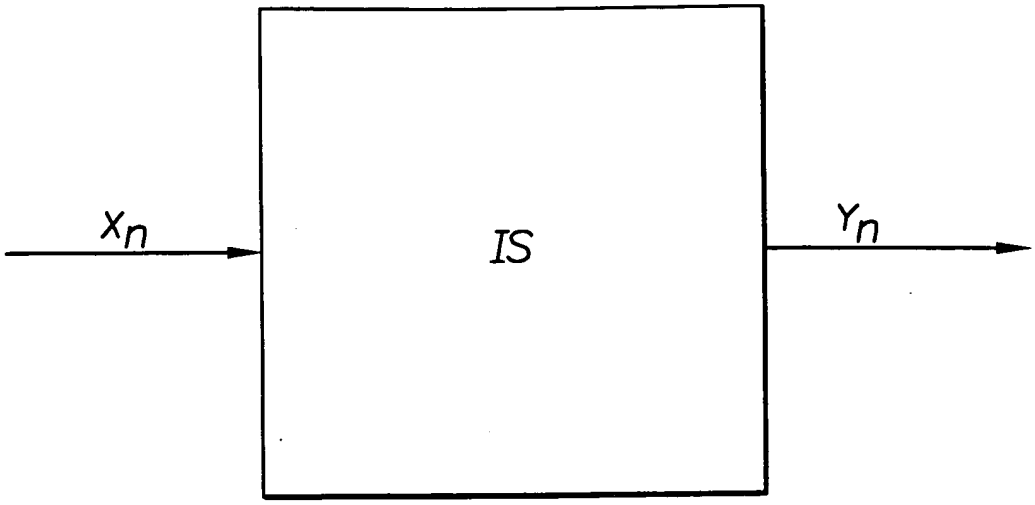


FIG. 16

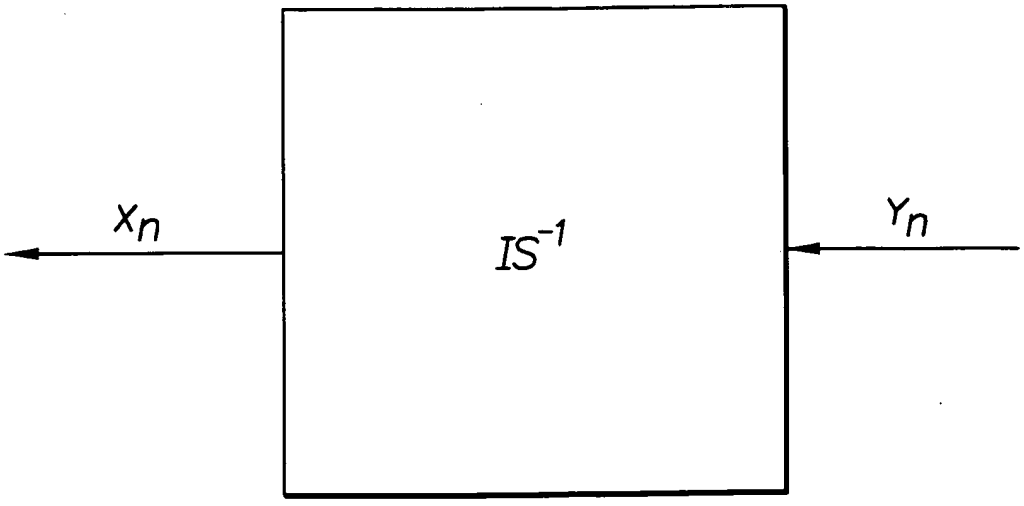


FIG. 17

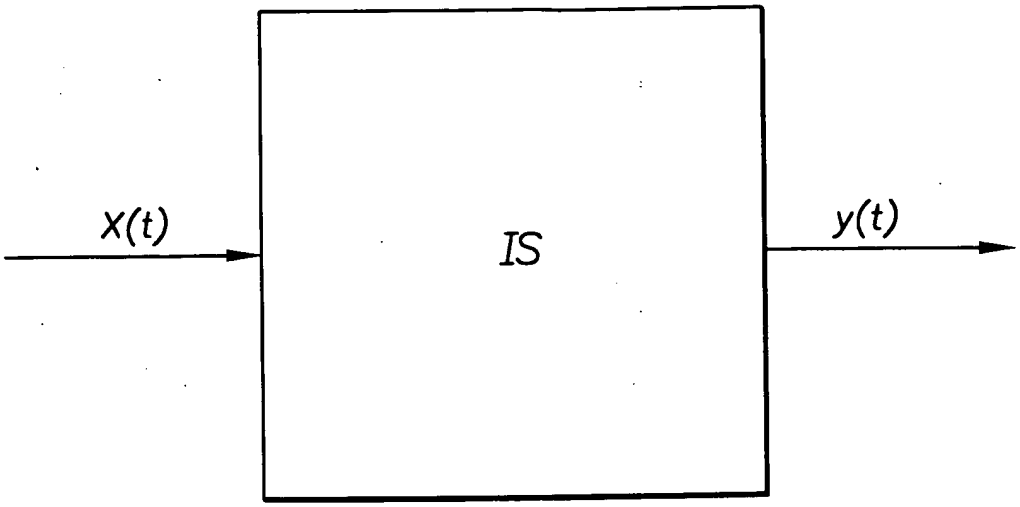


FIG18

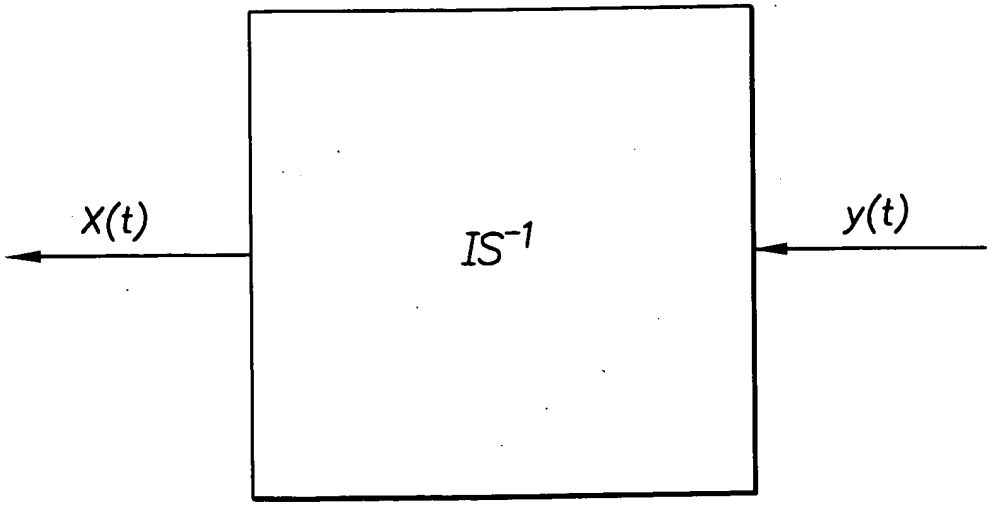


FIG. 19

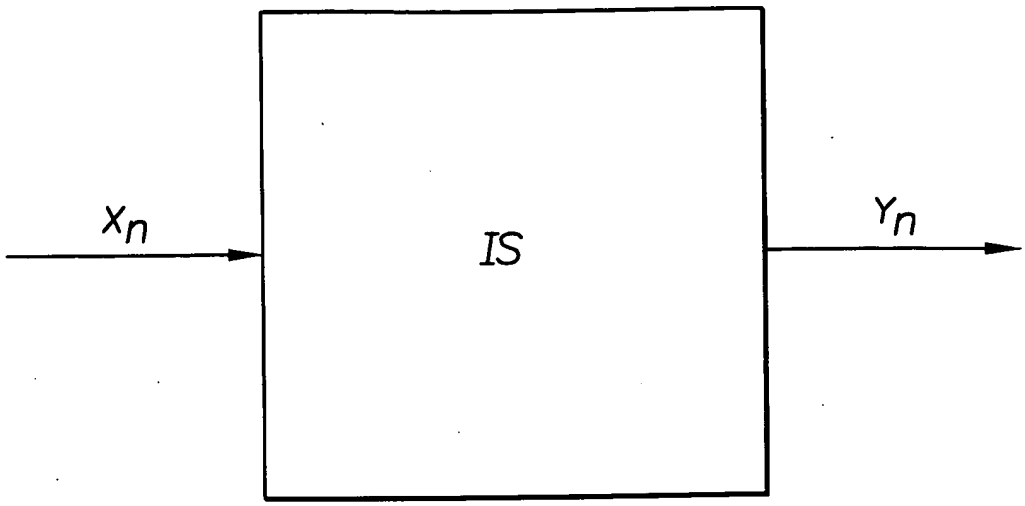


FIG20

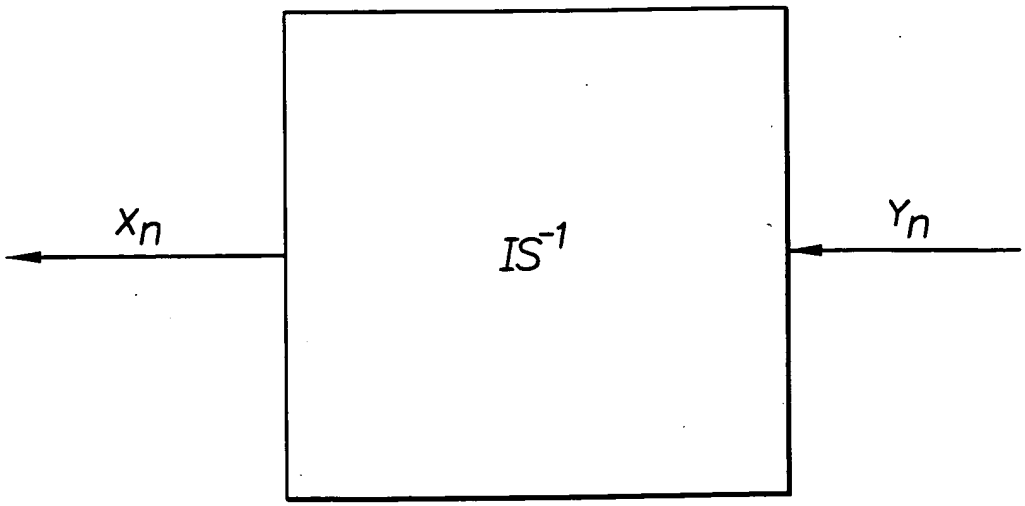
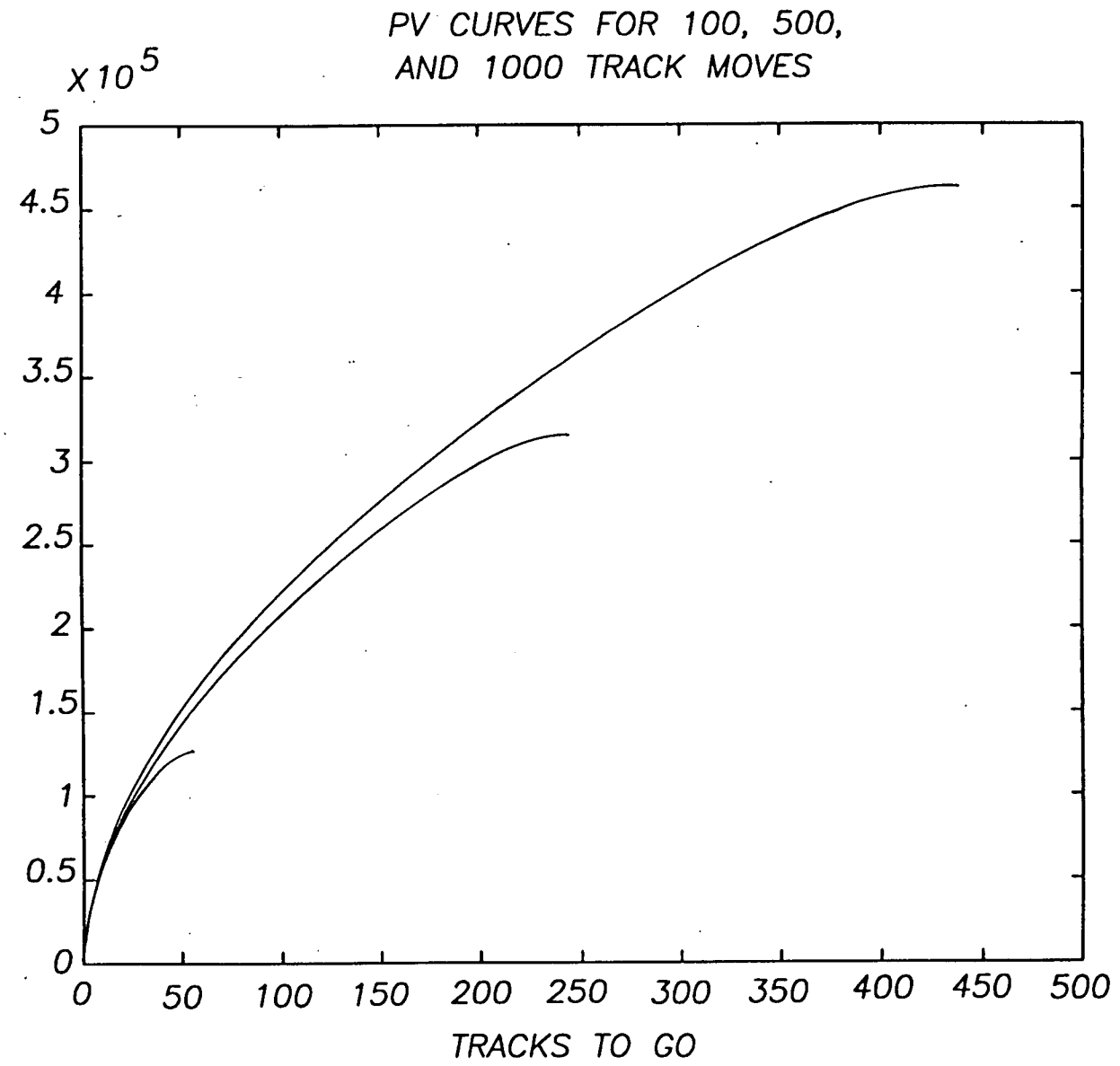
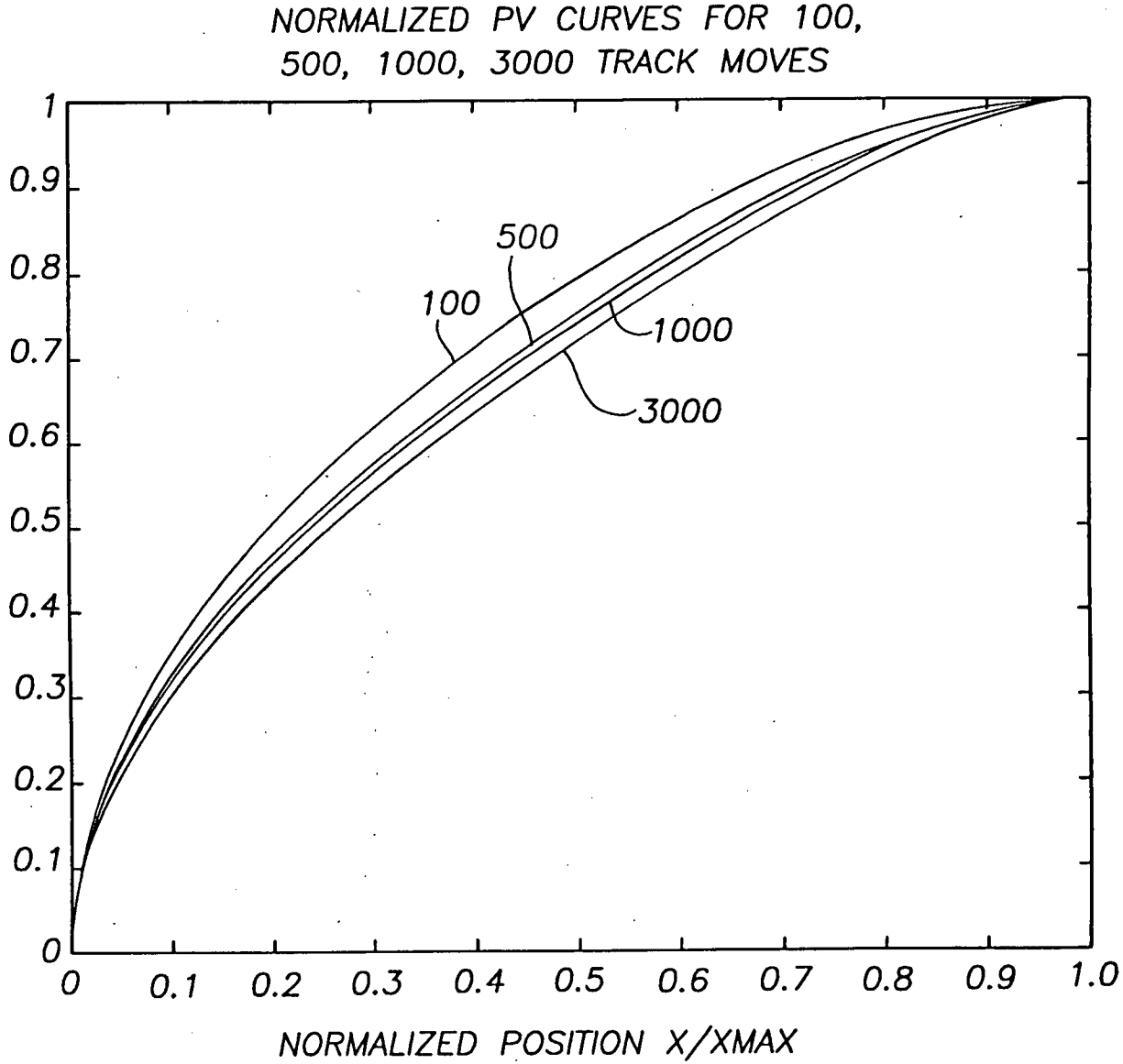


FIG.21


PV CURVES FOR 100, 500,
AND 1000 TRACK MOVES
X 10^5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
0
50
100
150
200
250
300
350
400
450
500
TRACKS TO GO
VELOCITY COMMAND
(TRACKS/SEC)

WO 98/36420 PCT/US98/02460

FIG.22



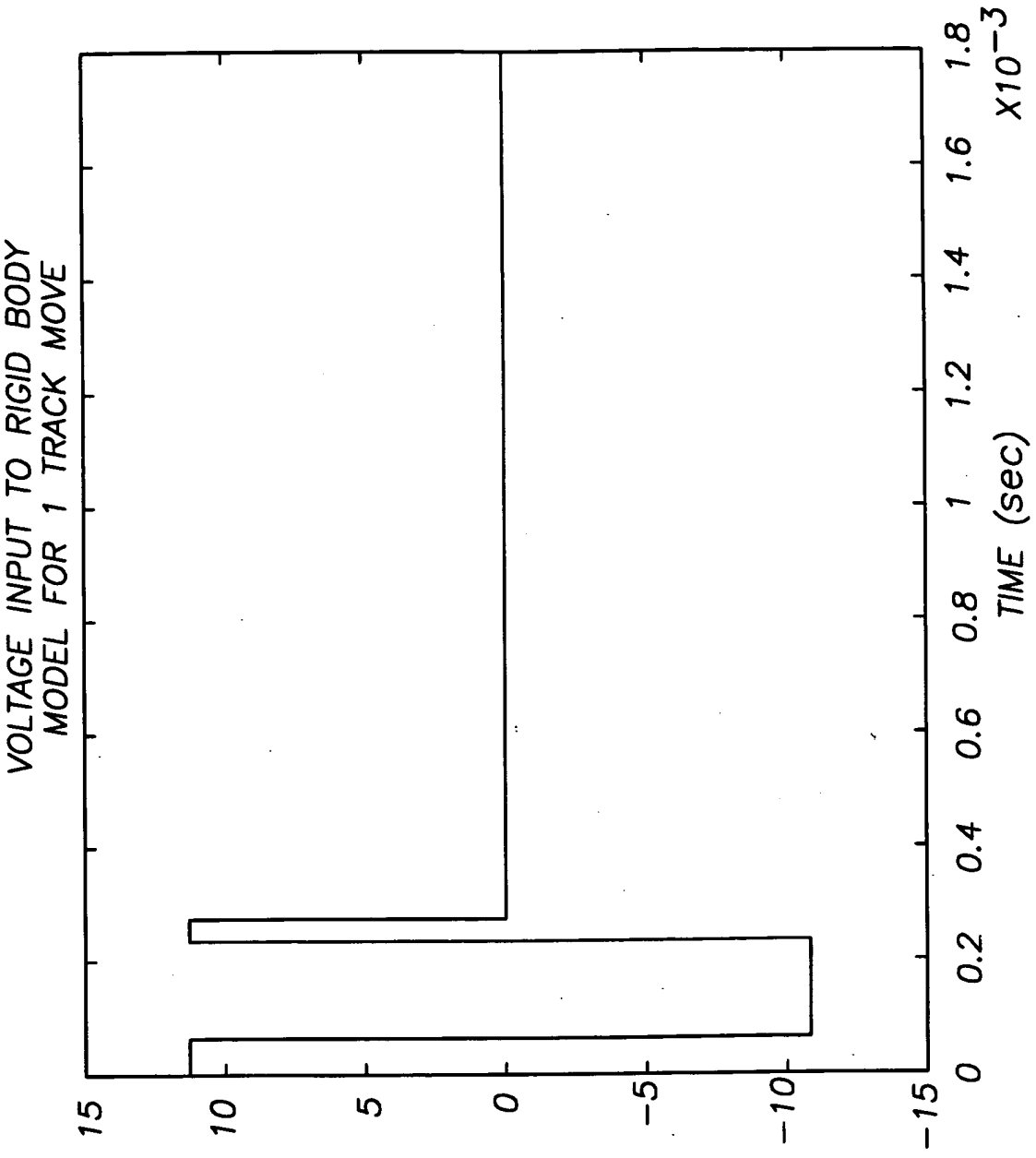

VOLTAGE INPUT TO RIGID BODY
MODEL FOR 1 TRACK MOVE
INPUT VOLTAGE
(VOLTS)
15
10
5
0
−5
−10
−15
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
TIME (sec)
X10−3

FIG.23A

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FIG.23B

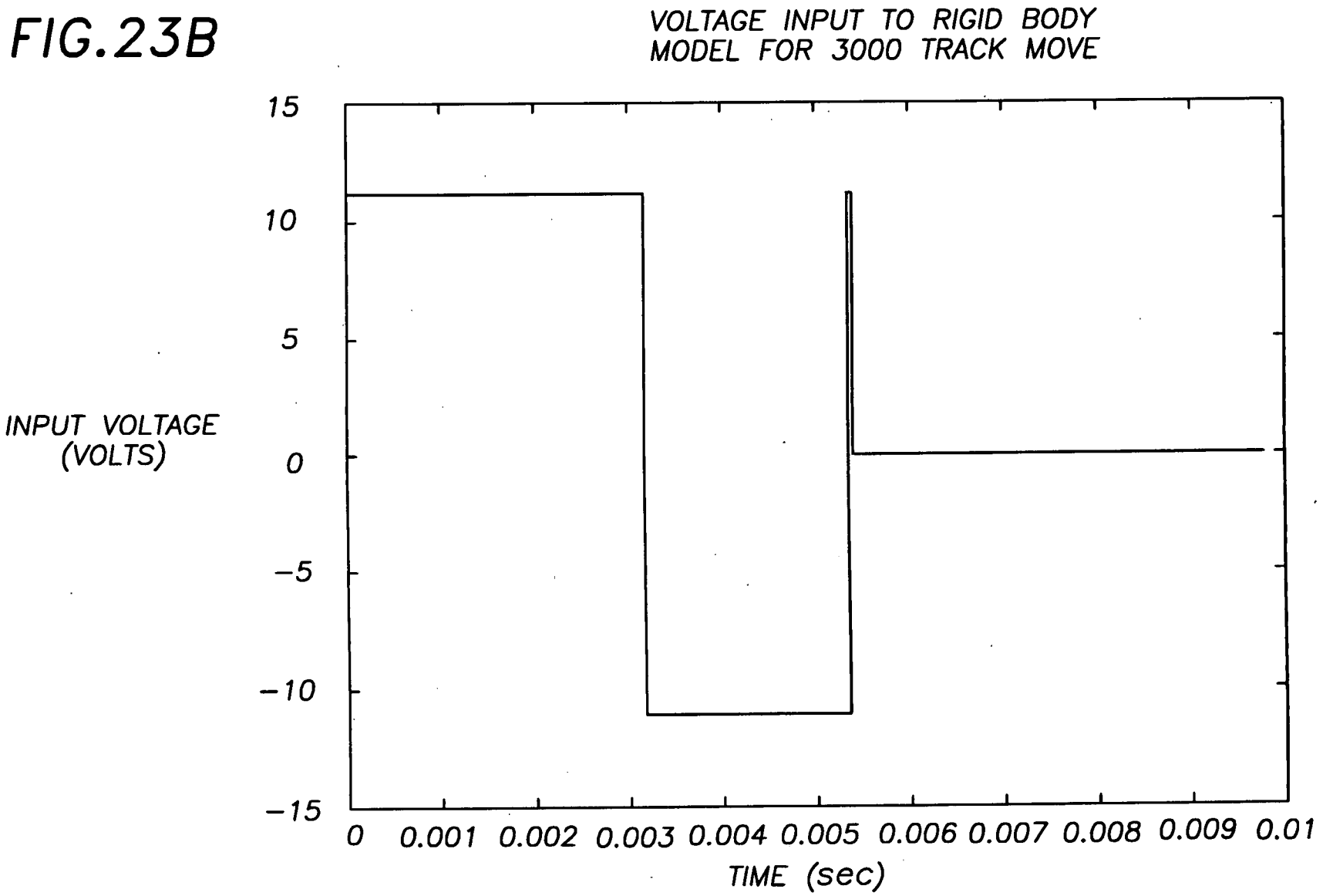


FIG.24

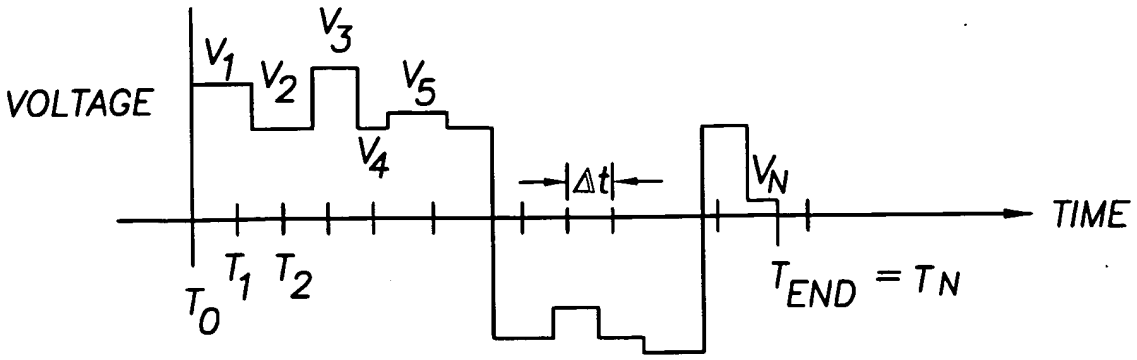


FIG.25

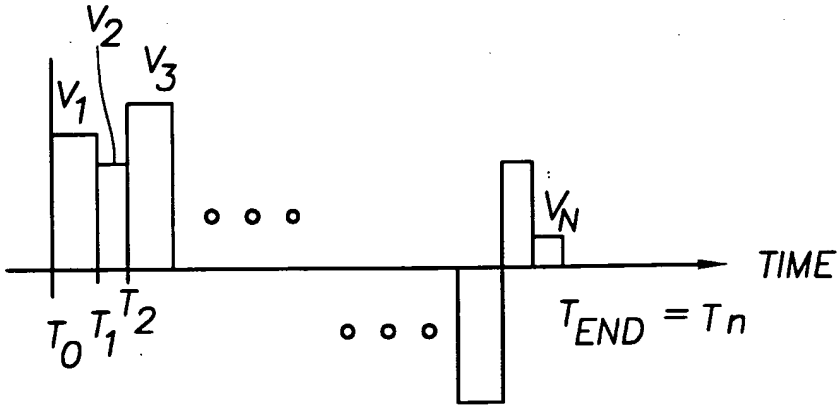


FIG.26

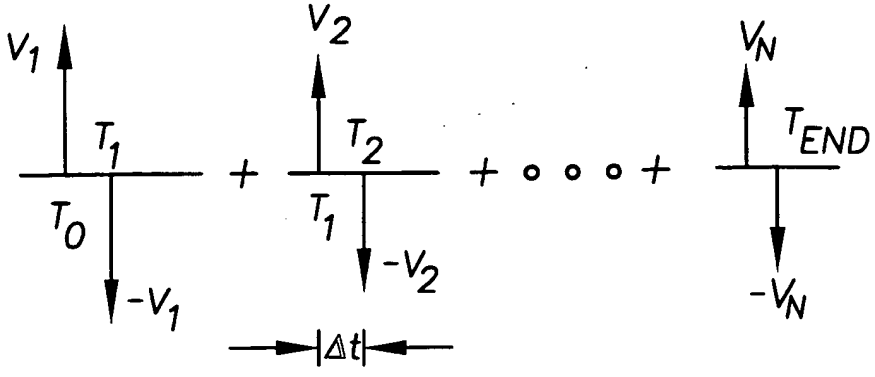


FIG.27

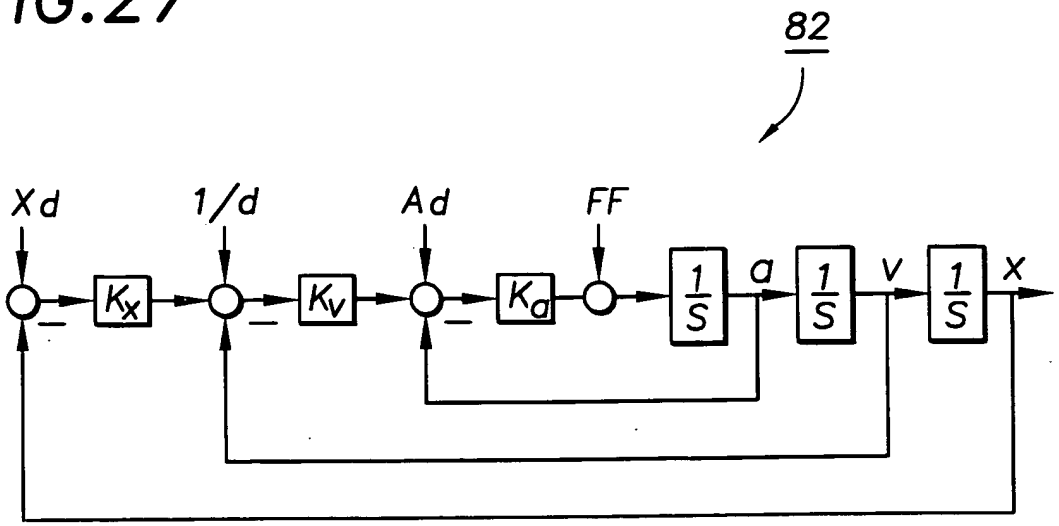


FIG.28

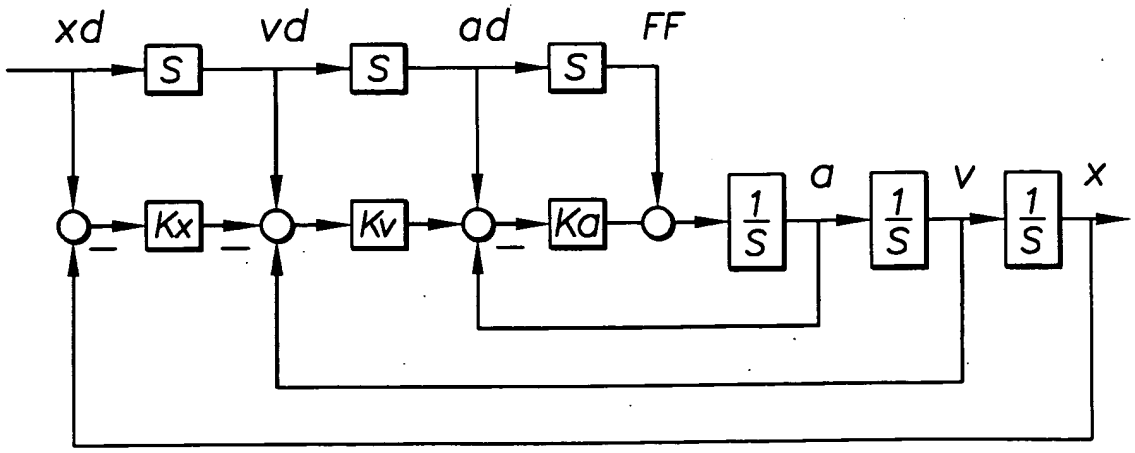


FIG.29

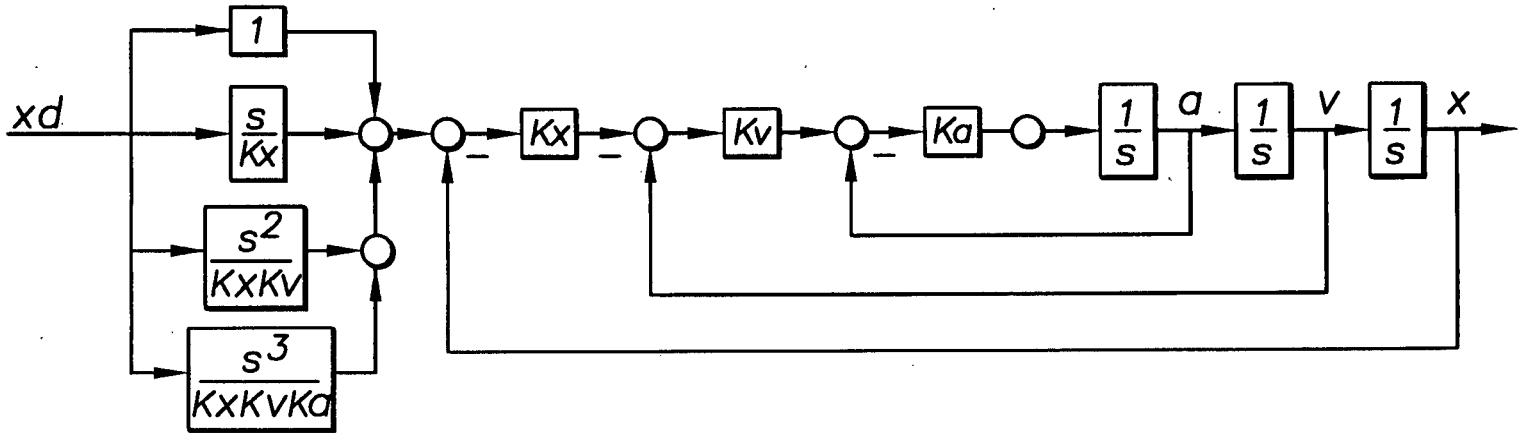

xd
1
s/Kx
s²/KxKv
s³/KxKvKa
Kx
Kv
Ka
1/s
a
1/s
v
1/s
x

FIG.30

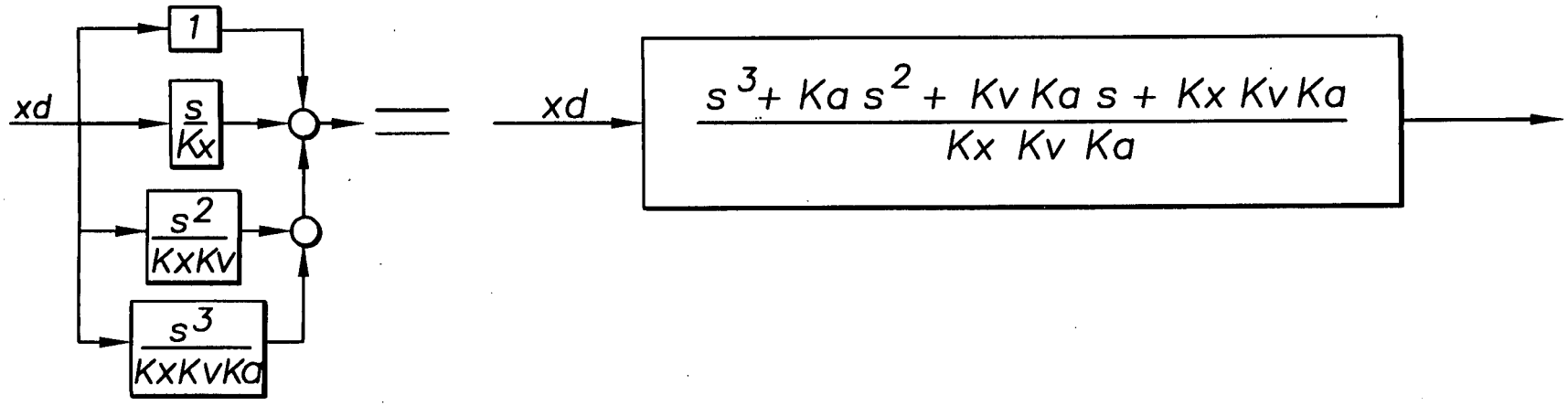
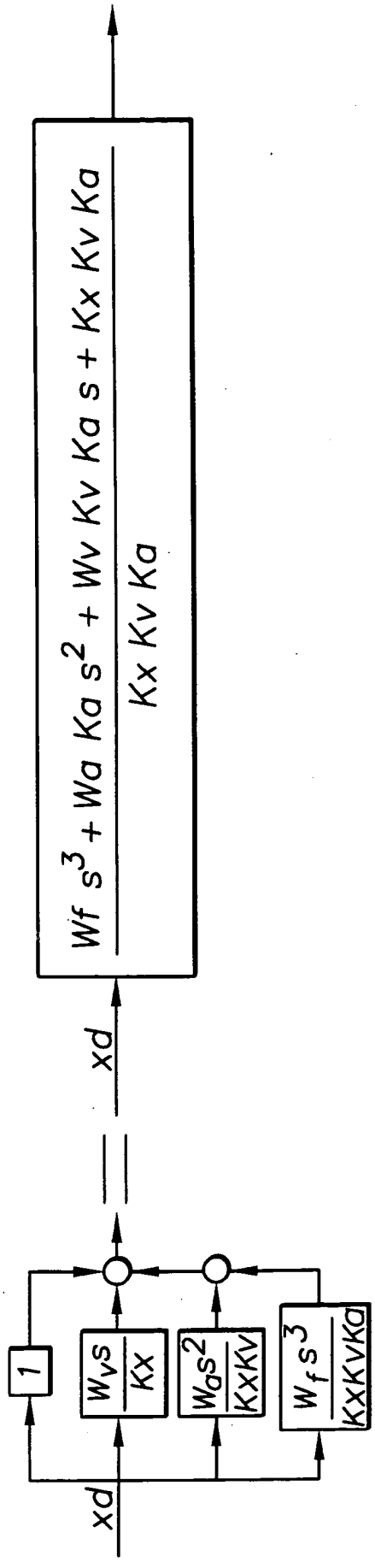

xd
1
s/Kx
s²/KxKv
s³/KxKvKa
xd
s³+ Ka s² + Kv Ka s + Kx Kv Ka
Kx Kv Ka

FIG.31


xd
$\frac{Wf\ s^3 + Wa\ Ka\ s^2 + Wv\ Kv\ Ka\ s + Kx\ Kv\ Ka}{Kx\ Kv\ Ka}$
xd
1
$\frac{Wv\ s}{Kx}$
$\frac{Wa\ s^2}{KxKv}$
$\frac{Wf\ s^3}{KxKvKa}$

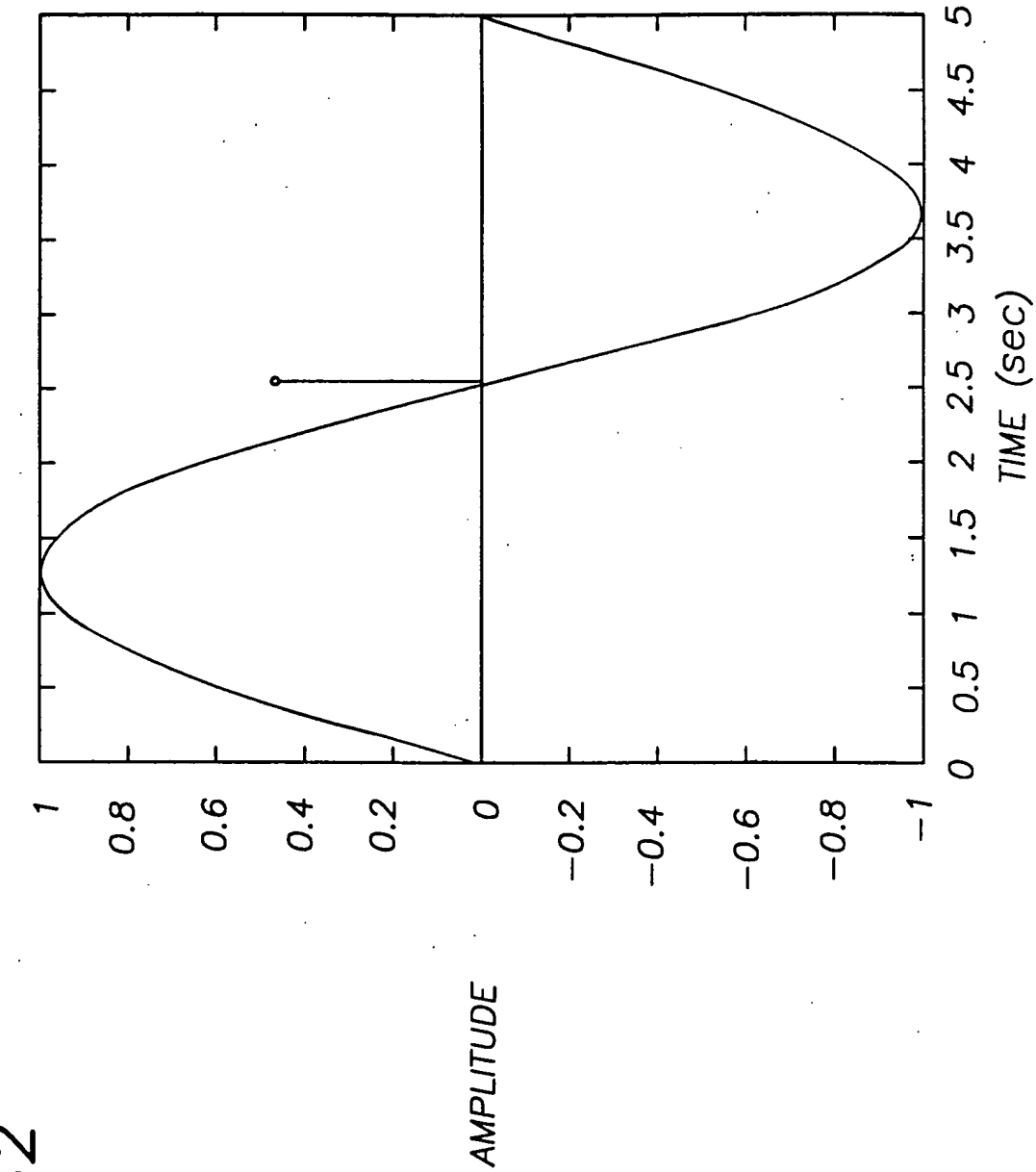

1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
AMPLITUDE
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
TIME (sec)

FIG.32

FIG.33

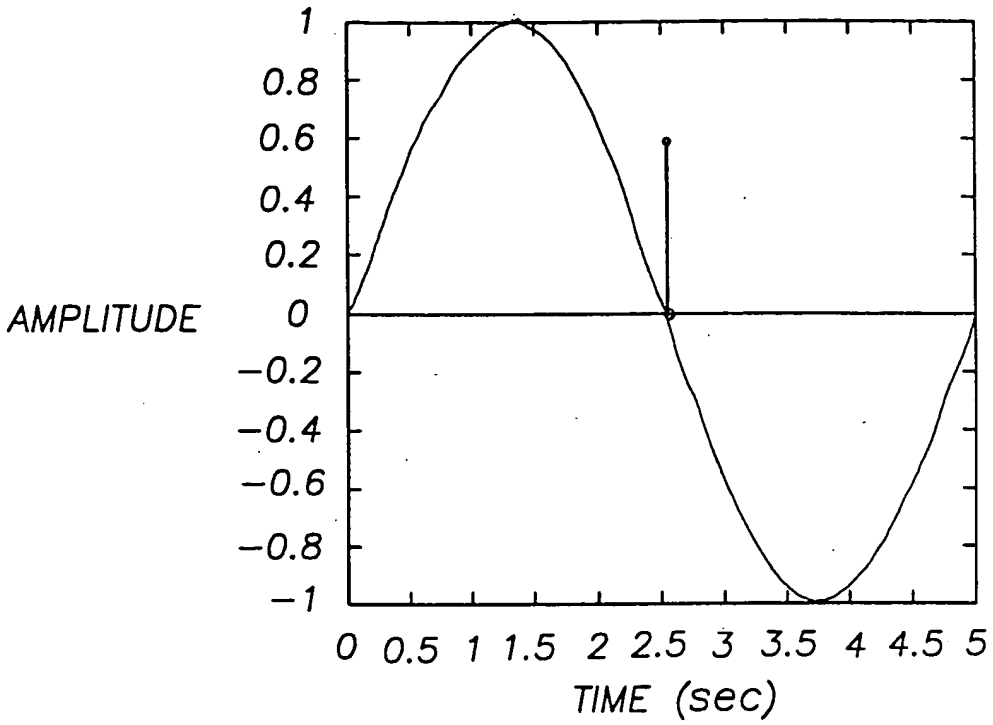
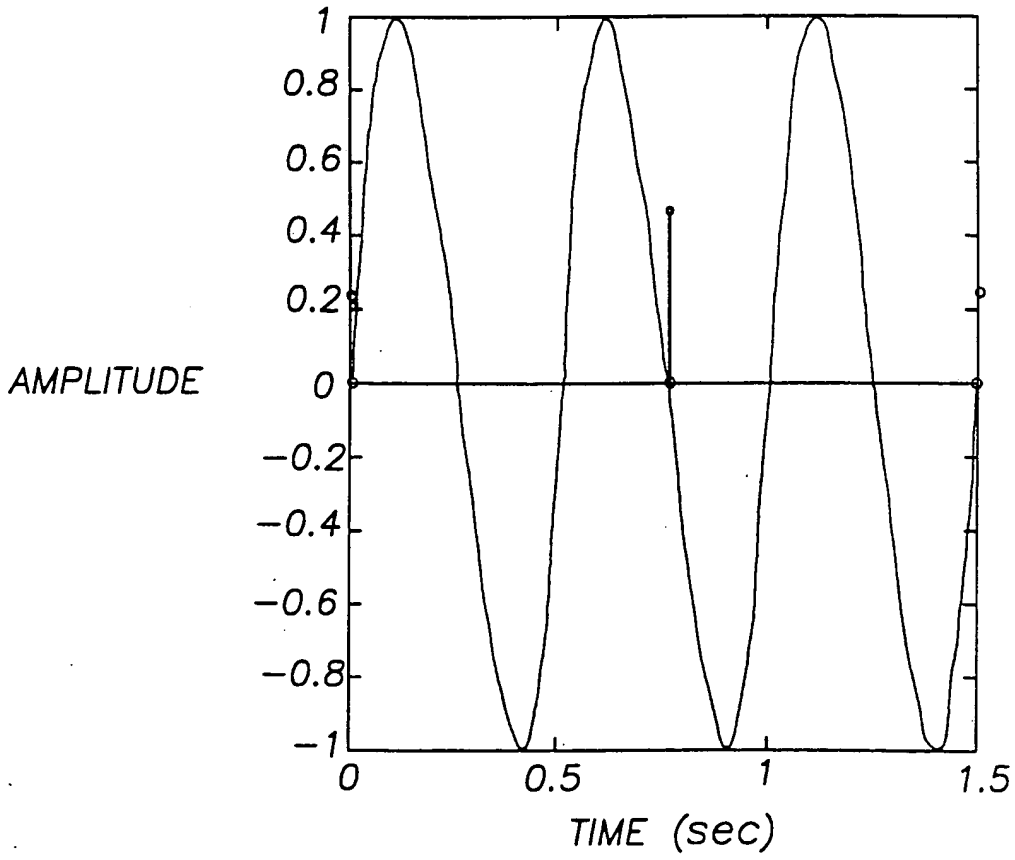

AMPLITUDE
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5
TIME (sec)

FIG.34


AMPLITUDE
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
0 0.5 1 1.5
TIME (sec)

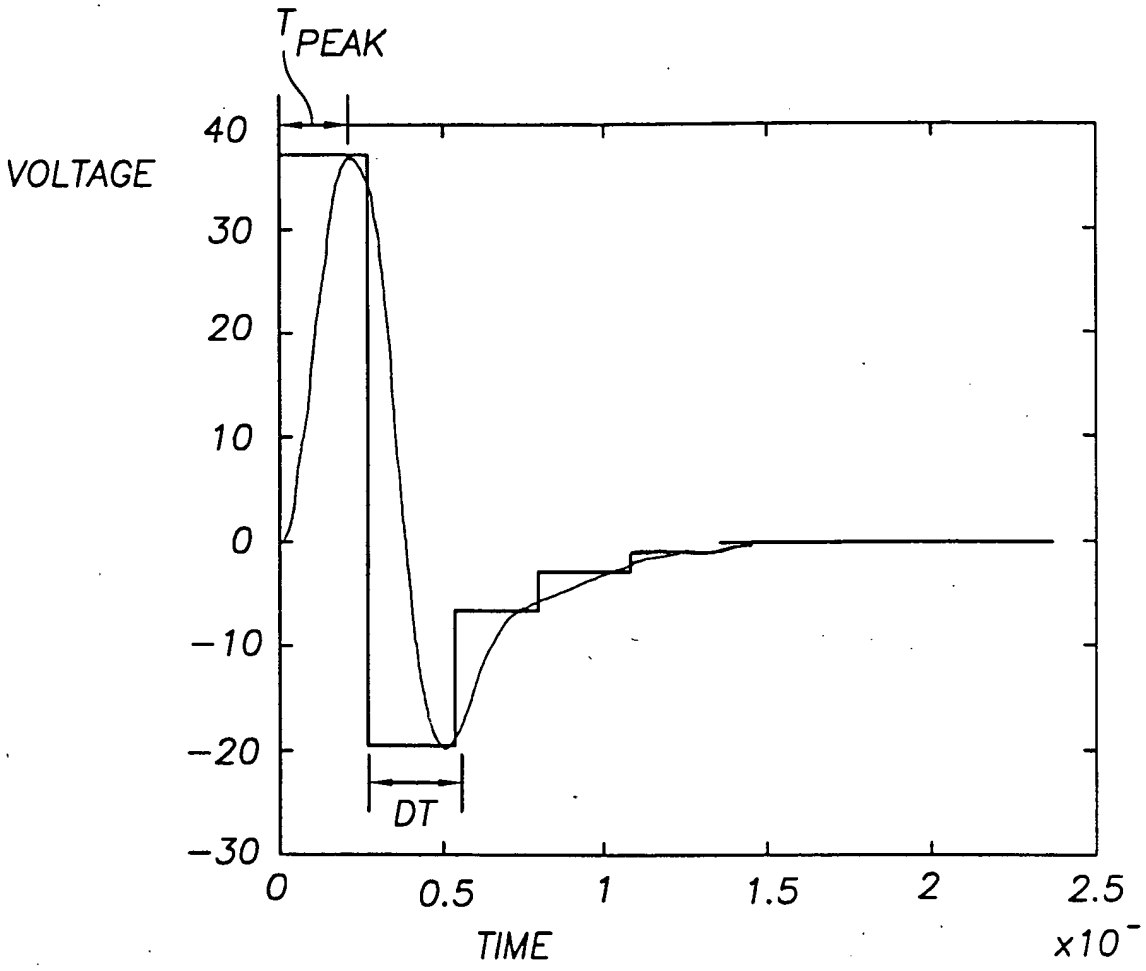



FIG.35